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IM62/1001

EXAMINER

ART UNIT PAPER NUMBER

1741

DATE MAILED: 10/01/99

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

OFFICE ACTION SUMMARY

- ☐ Responsive to communication(s) filed on _____
- ☐ This action is FINAL.
- ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 D.C. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire three month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

- ☒ Claim(s) 1-12 is/are pending in the application.
Of the above, claim(s) _____ is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 1-12 is/are rejected.
- ☐ Claim(s) _____ is/are objected to.
- ☐ Claim(s) _____ are subject to restriction or election requirement.

Application Papers

- ☒ See the attached Notice of Draftperson's Patent Drawing Review, PTO-948.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- ☒ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
- ☒ received.
- ☐ received in Application No. (Series Code/Serial Number) _____
- ☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

- ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- ☒ Notice of Reference Cited, PTO-892
- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____
- ☐ Interview Summary, PTO-413
- ☒ Notice of Draftperson's Patent Drawing Review, PTO-948
- ☐ Notice of Informal Patent Application, PTO-152

--SEE OFFICE ACTION ON THE FOLLOWING PAGES--

Art Unit: 1741

Claims 1-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1, line 3 recites an "auxiliary anode". One definition of "auxiliary" is "supplementary" (Meriam Webster's Collegiate Dictionary, tenth edition). However, another anode which the auxiliary anode is supplementary to has not been recited. Is another anode used in the method? Line 8 recites a plating liquid "reserved" in a plating bath. The meaning of as used here "reserved" is not clear. Is it applicant's intent to indicate that the liquid is held or contained within a plating tank?

Claim 3 recites "a liquid penetrating insulating spacer". The scope of "liquid penetrating" is not clear. Does this limitation require that the spacer be made of a material into which the liquid penetrates, eg. a porous material? Or does the limitation refer to the configuration rather than material of the spacer?

Claim 5, lines 2-3 recite an insulating tube "fitted with a periphery of the metal wire." The meaning of this expression is not clear. Is it applicant's intent to indicate that the tube is fitted around the wire's outer periphery? Claims 6, 7, 9, 10 include a similar limitation.

Claims not individually addressed are rejected for the reasons given with respect to the claim or claims on which they depend.

Art Unit: 1741

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 3, 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lichtenberger et al (4,786,390) in view of Haynes (3,804,725).

The Lichtenberger et al patent (hereinafter Lichtenberger) is directed to an anode configuration for electroplating. Lichtenberger teaches that the concepts of the invention may be used whenever anode current densities are high, such as the plating onto the interior surface of tubes with a wire anode concentric with the tube which serves as the cathode (column 7, lines 55-57). Lichtenberger is silent as to any insulation used to separate the wire anode from the tube.

Applicant's process and apparatus differ from Lichtenberger by reciting that the anode is insulated from an inner peripheral surface of the workpiece (claim 1) or reciting a liquid penetrating insulating spacer attached to the wire anode (claim 3). Claim 2 specifies that a liquid penetrating space is defined while claim 6 recites that the spacer is in the shape of a helical coil. The Haynes patent is directed to electroplating the inner wall of a tube. An anode is placed in the center of the tube and is spaced from the inner periphery of the tube by spacer 14. Spacer 14 is in the

Art Unit: 1741

form of a spiral helix. The spacer includes open area 17 and thus allows for liquid penetration. See figure 1.

The prior art of record is indicative of the level of skill of one of ordinary skill in the art. It would have been obvious at the time the invention was made to have utilized a helical spacer with a wire anode for plating the inner wall of a tube because Haynes shows that such a spacer effectively separates the central anode from the tube to prevent short circuiting while allowing liquid electrolyte to penetrate the space between the tube and the anode.

Claims 4 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lichtenberger et al (4,786,390) in view of Haynes (3,804,725) as applied to claims 1, 2, 3 and 6 above, and further in view of Kooijmans et al (4,738,995), Michaut et al (5,544,209) and Rogoff (2,329,653) .

Lichtenberger and Haynes are taken as above. Claim 4 additionally differs by reciting that the wire anode is formed by stranding thin wires of stainless steel together and providing a connecting terminal one one end. Claim 10, dependent on claim 4, recites that the spacer is in the shape of a helical coil as does claim 6. The Kooijmans et al patent (hereinafter Kooijmans) is directed to electrochemical deposition and teaches that stainless steel is a suitable material for use as an anode when coating the interior of a can (column 6, lines 51-54). The Michaut et al patent

Art Unit: 1741

(hereinafter Michaut) discloses the use of a multistrand cable. Note element 32 in 5. The Rogoff patent discloses the use of a wire connector at the end of a wire. See figures 1 and 4.

It would have been obvious at the time the invention was made to have utilized stainless steel for an anode because Kooijmans discloses that stainless steel is a suitable material for anodes used in electrodeposition processes, to have used a multistrand wire as shown by Michaut et al because it would provide higher current carrying capacity, and to have provided a wire connector on an end of the wire as shown by Rogoff because connection of the wire would be facilitated.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Palumbo et al (5,527,445) discloses a spacer with extending arms to locate an electrode within a tube. See figure 7.

Claims 5, 7, 8, 9, 11 and 12 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims. The prior art of record does not suggest the particular configurations recited in these claims.

Art Unit: 1741

- Any inquiry concerning this communication or earlier communications from the examiner should be directed to William Leader, whose telephone number is (703) 308-2530. The examiner can normally be reached Mondays-Thursdays from 8:00 AM to 5:00 PM eastern time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kathryn Gorgos can be reached at (703) 308-3328. The fax phone number for *official* after final faxes is (703) 305-3599. The fax phone number for all other *official* faxes is (703) 305-7718. Unofficial communications to the Examiner should be faxed to (703) 305-7719.

Any inquiry of a general nature or relating to the status of this application should be directed to the receptionist whose telephone number is (703) 308-0661.

W

William Leader:wtl
September 30, 1999

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